



## SEQUENCE LISTING

*13*  
<110> Polyak, Kornelia  
Porter, Dale  
Sgroi, Dennis  
Krop, Ian

<120> HIN-1, A TUMOR SUPPRESSOR GENE

<130> 00530-094001

<140> 10/081,817  
<141> 2002-02-22

<150> 60/270,973  
<151> 2001-02-23

<150> 60/351,908  
<151> 2002-01-25

<160> 32

<170> FastSEQ for Windows Version 4.0

<210> 1  
<211> 104  
<212> PRT  
<213> Homo sapiens

<400> 1  
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1 5 10 15  
Ser Ala Arg Ala Phe Leu Val Gly Ser Ala Lys Pro Val Ala Gln Pro  
20 25 30  
Val Ala Ala Leu Glu Ser Ala Ala Glu Ala Gly Ala Gly Thr Leu Ala  
35 40 45  
Asn Pro Leu Gly Thr Leu Asn Pro Leu Lys Leu Leu Ser Ser Leu  
50 55 60  
Gly Ile Pro Val Asn His Leu Ile Glu Gly Ser Gln Lys Cys Val Ala  
65 70 75 80  
Glu Leu Gly Pro Gln Ala Val Gly Ala Val Lys Ala Leu Lys Ala Leu  
85 90 95  
Leu Gly Ala Leu Thr Val Phe Gly  
100

<210> 2  
<211> 86  
<212> PRT  
<213> Homo sapiens

<400> 2  
Arg Ala Phe Leu Val Gly Ser Ala Lys Pro Val Ala Gln Pro Val Ala  
1 5 10 15  
Ala Leu Glu Ser Ala Ala Glu Ala Gly Ala Gly Thr Leu Ala Asn Pro  
20 25 30  
Leu Gly Thr Leu Asn Pro Leu Lys Leu Leu Ser Ser Leu Gly Ile

|                             |   |                 |
|-----------------------------|---|-----------------|
| 35                          | 40                                      | 45              |
| Pro Val Asn His Leu Ile Glu | Gly Ser Gln Lys Cys                     | Val Ala Glu Leu |
| 50                          | 55                                      | 60              |
| Gly Pro Gln Ala Val Gly     | Ala Val Lys Ala Leu Lys Ala Leu Leu Gly |                 |
| 65                          | 70                                      | 75              |
| Ala Leu Thr Val Phe Gly     |   | 80              |
|                             |   | 85              |

<210> 3  
 <211> 312  
 <212> DNA  
 <213> Homo sapiens

|  |     |
|--|-----|
| <400> 3  | 60  |
| atgaagctcg ccgccttcctt ggggctctgc gtggccctgt cctgcagctc cgctcgtgct | 120 |
| ttcttagtgg gctcgccaa gcctgtggcc cagcctgtcg ctgcgttga gtcggccggcg   | 180 |
| gaggccgggg ccgggacccc ggccaaacccc ctcggcaccc tcaacccctg gaagctcctg | 240 |
| ctgagcagcc tgggcatccc cgtgaaccac ctcatagagg gctcccagaa gtgtgtggct  | 300 |
| gagctgggtc cccaggccgt gggggccgtg aaggccctga aggccctgct gggggccctg  | 312 |
| acagtgttttgc   |     |

<210> 4  
 <211> 258  
 <212> DNA  
 <213> Homo sapiens

|   |     |
|---|-----|
| <400> 4   | 60  |
| cgtgtttct tagtgggctc ggccaaaggct gtggcccagc ctgtcgctgc gctggagtcg | 120 |
| gcggcggagg ccggggccgg gaccctggcc aacccctcg gcaccctcaa cccgctgaag  | 180 |
| ctcctgtga gcagcctggg catccccgtg aaccaccta tagaggctc ccagaagtgt    | 240 |
| gtggctgagc tgggtccccca ggccgtgggg gccgtgaagg ccctgaaggc cctgtgggg | 258 |
| gcctgacag tggggc  |     |

<210> 5  
 <211> 104  
 <212> PRT  
 <213> Mus musculus

|   |  |
|---|--|
| <400> 5   |  |
| Met Lys Leu Thr Thr Phe Leu Val Leu Cys Val Ala Leu Leu Ser     |  |
| 1 5 10 15   |  |
| Asp Ser Gly Val Ala Phe Phe Met Asp Ser Leu Ala Lys Pro Ala Val |  |
| 20 25 30  |  |
| Glu Pro Val Ala Ala Leu Ala Pro Ala Ala Glu Ala Val Ala Gly Ala |  |
| 35 40 45  |  |
| Val Pro Ser Leu Pro Leu Ser His Leu Ala Ile Leu Arg Phe Ile Leu |  |
| 50 55 60  |  |
| Ala Ser Met Gly Ile Pro Leu Asp Pro Leu Ile Glu Gly Ser Arg Lys |  |
| 65 70 75 80   |  |
| Cys Val Thr Glu Leu Gly Pro Glu Ala Val Gly Ala Val Lys Ser Leu |  |
| 85 90 95  |  |
| Leu Gly Val Leu Thr Met Phe Gly                                 |  |
| 100   |  |

<210> 6  
 <211> 85  
 <212> PRT

<213> Mus musculus

<400> 6  
 Val Ala Phe Phe Met Asp Ser Leu Ala Lys Pro Ala Val Glu Pro Val  
 1 5 10 15  
 Ala Ala Leu Ala Pro Ala Ala Glu Ala Val Ala Gly Ala Val Pro Ser  
 20 25 30  
 Leu Pro Leu Ser His Leu Ala Ile Leu Arg Phe Ile Leu Ala Ser Met  
 35 40 45  
 Gly Ile Pro Leu Asp Pro Leu Ile Glu Gly Ser Arg Lys Cys Val Thr  
 50 55 60  
 Glu Leu Gly Pro Glu Ala Val Gly Ala Val Lys Ser Leu Leu Gly Val  
 65 70 75 80  
 Leu Thr Met Phe Gly  
 85

<210> 7

<211> 312

<212> DNA

<213> Mus musculus

<400> 7  
 atgaagctta ccaccacatt tctagtgtct tgggtggctc tgctcagtga ctctgggttt 60  
 gctttcttca tggactcatt ggccaaaggct gggtagaaac ccgtggccgc ccttgctcca 120  
 gctgcagagg ctgtggcagg ggctgtgcct agcctaccat taagccactt ggccatcctg 180  
 aggttcatcc tggccagcat gggcatccca ttggatcctc tcatagaggg atccaggaag 240  
 tgggtcaccg agctggggcc tgaggctgtta ggagctgtga agtcaactgct ggggtcctg 300  
 acaatgttcg gt 312

<210> 8

<211> 255

<212> DNA

<213> Mus musculus

<400> 8  
 gttgctttct tcatggactc attggccaag cctgcggtag aaccgggtggc cgcccttgct 60  
 ccagctgcag aggctgtggc aggggctgtg cctagcctac cattaaggcca cttggccatc 120  
 ctgaggttca tcctggccag catgggatc ccattggatc ctctcataga gggatccagg 180  
 aagtgtgtca ccgagctggg ccctgaggct gttaggagctg tgaagtcaact gctgggggtc 240  
 ctgacaatgt tcgg 255

<210> 9

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 9  
 gagggaaagt ttttttatt tgg 23

<210> 10

<211> 22

<212> DNA

<213> Artificial Sequence

<220>  
<223> primer

<400> 10  
caaaaactaac aaaacaaaaac ca

22

<210> 11  
<211> 24  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> primer.

<400> 11  
gttaagagga agttttcgag gttc

24

<210> 12  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 12  
ggtacgggtt ttttacgggtt cgtc

24

<210> 13  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 13  
aacttcttat acccgatcct cg

22

<210> 14  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 14  
gttaagagga agtttttgag gttt

24

<210> 15  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

|  |  |     |
|--|--|-----|
| <400> 15   |  |     |
| ggtatgggtt ttttatgggtt tgtt  |  | 24  |
| <210> 16   |  |     |
| <211> 25   |  |     |
| <212> DNA  |  |     |
| <213> Artificial Sequence  |  |     |
| <220>  |  |     |
| <223> primer   |  |     |
| <400> 16   |  | 25  |
| caaaaacttct tataaccaat cctca                                       |  |     |
| <210> 17   |  |     |
| <211> 21   |  |     |
| <212> DNA  |  |     |
| <213> Artificial Sequence  |  |     |
| <220>  |  |     |
| <223> primer   |  |     |
| <400> 17   |  | 21  |
| tttccctgct tccacactag c  |  |     |
| <210> 18   |  |     |
| <211> 21   |  |     |
| <212> DNA  |  |     |
| <213> Artificial Sequence  |  |     |
| <220>  |  |     |
| <223> primer   |  |     |
| <400> 18   |  | 21  |
| agattaagaa ggaattgacc t  |  |     |
| <210> 19   |  |     |
| <211> 547  |  |     |
| <212> DNA  |  |     |
| <213> Homo sapiens   |  |     |
| <220>  |  |     |
| <221> misc_feature   |  |     |
| <222> 186  |  |     |
| <223> n = C or G   |  |     |
| <400> 19   |  | 60  |
| cggccgggaa ggcggccggg agtgaggcct gatcgccct ggccgcctcca cctccccagg  |  | 120 |
| cgcagaaggc gcccacgagg acccccagtg cccgacgttg ccacggctcg ggatcagagg  |  | 180 |
| cagggaccag ggagccagga actgcccgc ccccgccctg cctggcgcgaa ggaagctccc  |  | 240 |
| tcaccngagg gaagctcccc tcacccggcc cagcccttag gggggcgcggt ggggtcagac |  | 300 |
| cgcaaagcga aggtgcgggc cgggggtgggc ctgcgggaga caaaggccgg gcctgcctct |  | 360 |
| ctcagagggc cccagcgcct gccaagagga agtcctcgag gccccggcag ggaagggggc  |  | 420 |
| acgggcttcc cagggccgc cggccgcagc aggaagttgg ccagggcacg gcgtgagcg    |  | 480 |
| gagcggcag ggcttctca ggagcgcggg cgaggccggc gctggagggg cgaggaccgg    |  |     |
| gtataagaag ctcgtggcc ttgccccggc agccgcagg tccccgcgc ccccgagccc     |  | 540 |

547

ccgcgcc

&lt;210&gt; 20

&lt;211&gt; 279

&lt;212&gt; DNA

&lt;213&gt; Rattus norvegicus

&lt;400&gt; 20

|                       |                        |                       |     |
|-----------------------|------------------------|-----------------------|-----|
| gttctctgtt ttgtgttgtt | aggcggtgct ttcttgggtt  | attcactggc caagcctgtt | 60  |
| gttagaaccgg           | tggctgccat tgctacagct  | tgccaggggc tgcgtctagc | 120 |
| ctaccattaa gccacttggc | catcctgagg ttcatctgtt  | ccagcctggg catccattt  | 180 |
| gatcctctca tagatggttt | caggaagtgc gtccaccgagc | tggcccttga ggctgttaga | 240 |
| gctgtgaagt cactgctggg | ggccctgaca acgttcggt   |                       | 279 |

&lt;210&gt; 21

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Rattus norvegicus

&lt;400&gt; 21

|   |    |    |    |
|---|----|----|----|
| Val Leu Cys Phe Val Leu Val Gly Val Ala Phe Leu Val Asp Ser Leu |    |    |    |
| 1   | 5  | 10 | 15 |
| Ala Lys Pro Val Val Glu Pro Val Ala Ala Ile Ala Thr Ala Ala Glu |    |    |    |
| 20  | 25 | 30 |    |
| Ala Val Ala Gly Ala Val Pro Ser Leu Pro Leu Ser His Leu Ala Ile |    |    |    |
| 35  | 40 | 45 |    |
| Leu Arg Phe Ile Val Thr Ser Leu Gly Ile Pro Leu Asp Pro Leu Ile |    |    |    |
| 50  | 55 | 60 |    |
| Asp Gly Ser Arg Lys Cys Val Thr Glu Leu Gly Pro Glu Ala Val Gly |    |    |    |
| 65  | 70 | 75 | 80 |
| Ala Val Lys Ser Leu Leu Gly Ala Leu Thr Thr Phe Gly             |    |    |    |
| 85  | 90 |    |    |

&lt;210&gt; 22

&lt;211&gt; 84

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 22

|   |    |    |    |
|---|----|----|----|
| Phe Leu Val Gly Ser Ala Lys Pro Val Ala Gln Pro Val Ala Ala Leu |    |    |    |
| 1   | 5  | 10 | 15 |
| Glu Ser Ala Ala Glu Ala Gly Ala Gly Thr Leu Ala Asn Pro Leu Gly |    |    |    |
| 20  | 25 | 30 |    |
| Thr Leu Asn Pro Leu Lys Leu Leu Ser Ser Leu Gly Ile Pro Val     |    |    |    |
| 35  | 40 | 45 |    |
| Asn His Leu Ile Glu Gly Ser Gln Lys Cys Val Ala Glu Leu Gly Pro |    |    |    |
| 50  | 55 | 60 |    |
| Gln Ala Val Gly Ala Val Lys Ala Leu Lys Ala Leu Leu Gly Ala Leu |    |    |    |
| 65  | 70 | 75 | 80 |
| Thr Val Phe Gly   |    |    |    |

&lt;210&gt; 23

&lt;211&gt; 252

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

<400> 23

|            |            |            |            |            |            |     |
|------------|------------|------------|------------|------------|------------|-----|
| ttcttagtgg | gctcgccaa  | gcctgtggcc | cagcctgtcg | ctgcgctgga | gtcgccggcg | 60  |
| gaggccgggg | ccgggaccct | ggccaacccc | ctcgacacc  | tcaaccgc   | gaagctcctg | 120 |
| ctgagcagcc | ttggcatccc | cgtgaaccac | ctcatagagg | gctcccaga  | gtgtgtggct | 180 |
| gagctggtc  | cccaggccgt | ggggccgtg  | aaggccctga | aggccctgt  | ggggccctg  | 240 |
| acagtgtttg | gc         |            |            |            |            | 252 |

<210> 24

<211> 83

<212> PRT

<213> *Mus musculus*

<400> 24

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Phe | Met | Asp | Ser | Leu | Ala | Lys | Pro | Ala | Val | Glu | Pro | Val | Ala | Ala |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |
| Leu | Ala | Pro | Ala | Ala | Glu | Ala | Val | Ala | Gly | Ala | Val | Pro | Ser | Leu | Pro |
|     |     |     |     |     | 20  |     |     |     | 25  |     |     |     | 30  |     |     |
| Leu | Ser | His | Leu | Ala | Ile | Leu | Arg | Phe | Ile | Leu | Ala | Ser | Met | Gly | Ile |
|     |     |     |     |     | 35  |     |     | 40  |     |     |     | 45  |     |     |     |
| Pro | Leu | Asp | Pro | Leu | Ile | Glu | Gly | Ser | Arg | Lys | Cys | Val | Thr | Glu | Leu |
|     |     |     |     |     | 50  |     |     | 55  |     |     | 60  |     |     |     |     |
| Gly | Pro | Glu | Ala | Val | Gly | Ala | Val | Lys | Ser | Leu | Leu | Gly | Val | Leu | Thr |
|     |     |     |     |     | 65  |     |     | 70  |     |     | 75  |     |     | 80  |     |
| Met | Phe | Gly |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 25

<211> 249

<212> DNA

<213> *Mus musculus*

<400> 25

|             |            |             |            |            |            |     |
|-------------|------------|-------------|------------|------------|------------|-----|
| ttcttcattgg | actcattggc | caagcctgcg  | gtagaacccg | tggccgcct  | tgctccagct | 60  |
| gcagaggctg  | tggcaggggc | tgtgcctagc  | ctaccattaa | gccacttggc | catcctgagg | 120 |
| ttcatcctgg  | ccagcatggg | catccattg   | gatcctctca | tagagggatc | caggaagtgt | 180 |
| gtcaccgagc  | tggccctga  | ggctgttagga | gctgtgaagt | cactgctggg | ggtcctgaca | 240 |
| atgttcgggt  |            |             |            |            |            | 249 |

<210> 26

<211> 249

<212> DNA

<213> *Rattus norvegicus*

<400> 26

|            |            |             |            |            |            |     |
|------------|------------|-------------|------------|------------|------------|-----|
| ttcttggtgg | attcactggc | caagcctgtg  | gtagaacccg | tggctgccat | tgctacagct | 60  |
| gcagaggctg | tggcaggggc | tgtgcctagc  | ctaccattaa | gccacttggc | catcctgagg | 120 |
| ttcatcgtga | ccagcctggg | catccattg   | gatcctctca | tagatggtc  | caggaagtgc | 180 |
| gtcaccgagc | tggccctga  | ggctgttagga | gctgtgaagt | cactgctggg | ggtcctgaca | 240 |
| acgttcgggt |            |             |            |            |            | 249 |

<210> 27

<211> 83

<212> PRT

<213> *Rattus norvegicus*

<400> 27

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Val | Asp | Ser | Leu | Ala | Lys | Pro | Val | Val | Glu | Pro | Val | Ala | Ala |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|   |    |    |             |
|---|----|----|-------------|
| 1   | 5  | 10 | 15          |
| Ile Ala Thr Ala Ala Glu Ala Val Ala Gly Ala Val Pro Ser |    |    | Leu Pro     |
| 20  | 25 | 30 |             |
| Leu Ser His Leu Ala Ile Leu Arg Phe Ile Val Thr Ser     |    |    | Leu Gly Ile |
| 35  | 40 | 45 |             |
| Pro Leu Asp Pro Leu Ile Asp Gly Ser Arg Lys Cys Val Thr |    |    | Glu Leu     |
| 50  | 55 | 60 |             |
| Gly Pro Glu Ala Val Gly Ala Val Lys Ser Leu Leu Gly Ala |    |    | Leu Thr     |
| 65  | 70 | 75 | 80          |
| Thr Phe Gly   |    |    |             |

<210> 28  
 <211> 109  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 28  
 Met Phe Lys Leu Ser Ala Leu Val Val Leu Cys Ala Leu Val Ala Cys  
 1 5 10 15  
 Ser Ser Ala Glu Pro Lys Pro Ala Ile Leu Ala Ala Ala Pro Val Val  
 20 25 30  
 Ala Ala Ala Pro Ala Gly Val Val Thr Ala Thr Ser Ser Gln Tyr Val  
 35 40 45  
 Ala Arg Asn Phe Asn Gly Val Ala Ala Ala Pro Val Val Ala Ala Ala  
 50 55 60  
 Tyr Thr Ala Pro Val Ala Ala Ala Tyr Thr Ala Pro Val Ala Ala  
 65 70 75 80  
 Ala Ala Tyr Thr Ala Pro Val Ala Ala Ala Tyr Ser Ala Tyr Pro Tyr  
 85 90 95  
 Ala Ala Tyr Pro Tyr Ser Ala Ala Tyr Thr Thr Val Leu  
 100 105

<210> 29  
 <211> 327  
 <212> DNA  
 <213> Drosophila melanogaster

<400> 29  
 atgttcaagc tgcgtgcctc cggtgtcctg tgcgtctgg tggcctgctc ctcggctgag 60  
 cccaaagcccg ctatcctggc cgccgctcca gtgggtgcag ctgctccctgc cggcgtggtc 120  
 accgctacca gttcgcagta cgtggccgc aacttcaacg gtgtggctgc tgctccagtt 180  
 gttggccgtcg cctacaccgc tccagttgcc gccgctgcct ataccgcctc agttggccgc 240  
 gctgcttata ccgctccagt tgccgctgcc tactctgctt atccgtatgc cgcctaccct 300  
 tacagcgctg catacaccac tgttttg 327

<210> 30  
 <211> 137  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 30  
 Met Lys Phe Leu Ala Val Cys Phe Phe Ala Val Val Ala Val Ala Ala  
 1 5 10 15  
 Ala Lys Pro Gly Ile Val Ala Pro Leu Ala Tyr Thr Ala Pro Ala Val  
 20 25 30  
 Val Gly Ser Ala Ala Tyr Val Ala Pro Tyr Ala Ser Ser Tyr Thr Ala

|   |     |     |    |
|---|-----|-----|----|
| 35  | 40  | 45  |    |
| Asn Ser Val Ala His Ser Ala Ala Phe Pro Ala Ala Tyr Thr Ala Ala |     |     |    |
| 50  | 55  | 60  |    |
| Tyr Thr Ala Pro Val Ala Ala Ala Tyr Thr Ala Pro Val Ala Ala Ala |     |     |    |
| 65  | 70  | 75  | 80 |
| Tyr Thr Ala Pro Val Ala Ala Ala Tyr Ala Ala Pro Ala Ala Tyr Thr |     |     |    |
| 85  | 90  | 95  |    |
| Ala Ala Tyr Thr Ala Pro Ile Ala Arg Tyr Ala Ala Thr Pro Phe Ala |     |     |    |
| 100   | 105 | 110 |    |
| Ala Pro Ile Ala Ala Pro Val Ala Ala Ala Tyr Thr Ala Pro Ile Ala |     |     |    |
| 115   | 120 | 125 |    |
| Ala Ala Ala Pro Val Leu Leu Lys Lys                             |     |     |    |
| 130   | 135 |     |    |

<210> 31

<211> 411

<212> DNA

<213> Drosophila melanogaster

<400> 31

|  |     |
|--|-----|
| atgaaaattcc tcgccgtctg cttcttcgt gttgtggctg tggctgctgc caaacccgg   | 60  |
| attgtggctc ctctggctta caccgtccg gctgtggctgg gcagtgcgc ctacgtggct   | 120 |
| ccctacgcct ccagctacac cgccaaactcg gtggcccaaca ggcggcctt cccagctgcc | 180 |
| tacaccggcg cctacactgc tcccgttgc gctgcctata ccgctccagt ggctgctgct   | 240 |
| tataccgcctc cagtggccgc tgegtacgcc gccccagctg cctataccgc tgcctacacc | 300 |
| gccccattg cccgttatgc cgccacccccc ttgcagcac ccattgcgc tcccgtggct    | 360 |
| gcccctaca ccgccccat cgccggcgt gccccagttc tgctgaagaa g              | 411 |

<210> 32

<211> 93

<212> PRT

<213> Homo sapiens

<400> 32

|   |  |
|---|--|
| Met Lys Leu Val Thr Ile Phe Leu Leu Val Thr Ile Ser Leu Cys Ser |  |
| 1 5 10 15   |  |
| Tyr Ser Ala Thr Ala Phe Leu Ile Asn Lys Val Pro Leu Pro Val Asp |  |
| 20 25 30  |  |
| Lys Leu Ala Pro Leu Pro Leu Asp Asn Ile Leu Pro Phe Met Asp Pro |  |
| 35 40 45  |  |
| Leu Lys Leu Leu Lys Thr Leu Gly Ile Ser Val Glu His Leu Val     |  |
| 50 55 60  |  |
| Glu Gly Leu Arg Lys Cys Val Asn Glu Leu Gly Pro Glu Ala Ser Glu |  |
| 65 70 75 80   |  |
| Ala Val Lys Lys Leu Leu Glu Ala Leu Ser His Leu Val             |  |
| 85 90   |  |